

Breakout Discussion Topics

PURITY

• Current methods to assess the purity of the SWCNT material in the unpurified (raw) form or in the processed form. These can change depending on the morphology of the material under study (powder, film, gel or liquid). The discussion topics therefore will focus on the following:

- a) Identify the techniques in use and their relative merits
- b) Suitability of a technique to make qualitative assessment
- c) Suitability of a technique to make quantitative assessment
- d) New techniques that need to be added to the tool box

The goals are:

1. Protocol to measure the fullerene content (who, when, how ? ?)
2. Protocol to measure the amorphous carbon content
3. Protocol to measure the graphite content
4. Protocol to measure the crystallinity
5. Protocol to measure the derivatized (functionalized) SWCNTs
6. Protocol to measure the defective SWCNTs (defect type, density and distribution)
7. Protocol to measure the metal content
8. Development of purity standards (sheet, powder, film, gel or liquid ?) and distribution?

Miscellaneous issues in improving the purity of SWCNT material:

1. *Penalties involved in improving the purity of the SWCNT material*
2. *Difficulties involved in maintaining the purity of the material for mechanical, electrical and thermal applications.*
3. *Consistency of SWCNT material*

DISPERSION

• Current methods to assess the extent and stability of dispersion of the SWCNT material in the unpurified (raw) form or in the processed form. These can change depending on the morphology of the material under study (powder, film, gel or liquid). The discussion topics therefore will focus on the following:

- a) Identify the techniques in use and their relative merits
- b) Suitability of a technique to make qualitative assessment
- c) Suitability of a technique to make quantitative assessment
- d) New techniques that need to be added to the tool box

The goals are:

1. Protocol to measure the extent and state of macro dispersion in solvents (who, when, how ? ?)
2. Protocol to measure the extent and state of macro dispersion in solids (composites)
3. Protocol to measure the interfacial adhesion between SWCNTs and host matrices
4. Protocol to measure the extent and state of nano dispersion (debundling of ropes) in solvents
5. Protocol to measure the extent and state of nano dispersion in solids (composites)
6. Development of dispersion standards (sheet, powder, film, gel or liquid ?) and distribution ?

Miscellaneous issues in improving the dispersion of SWCNT material:

1. *Penalties involved in improving the dispersion of the SWCNT material*
2. *Difficulties involved in maintaining the dispersion of the material for mechanical, electrical and thermal applications.*
3. *Consistency of SWCNT material*